Section: 31 - Fire Prevention Division - Plan Checks	Subject: Guidelines for Automatic Fire Sprinkler Systems	OPS: 3105.00
Page: 1 of 3	Origin Date: 01/03/05	Revision Date: 06/24/06

SCOPE

These codes and standards shall provide the minimum requirements for the design installation, testing, and inspection of automatic fire sprinkler systems in the City of Chula Vista:

- City of Chula Vista Fire Prevention Standard Operating Guidelines
- California Fire Code 2001 Edition
- California Building Code 2001 Edition
- NFPA 13 1999 Edition
- California Code of Regulations (CCR) - Title 19.
- Standard Drawings and Specifications of the appropriate Water District having jurisdiction for public systems when applicable. (WAS)

PLANS, PERMITS, CALCULATIONS, AND MATERIAL SUBMITTALS

Complete plans for aboveground and underground components should be submitted for approval well in advance of installation. Approval shall be obtained from the Chula Vista Fire Prevention Division prior to any installation. Fire sprinkler system plan review can take up to 20 working days. Submit a minimum of three sets of drawings for review, additional sets may be requested upon review. Upon approval, the Fire Prevention Division retains a minimum of one set. The contractor should provide additional sets as needed for approval.

The Chula Vista Fire Department will only accept computer-generated plans for fire sprinkler system installation.

The contractor shall provide an electronic copy of the plans for laserfiche importing in the Multi-page tif group 4 format at the time of final plan approval. Changes in the field will require as-builts in an electronic copy prior to thebuilding final (effective 07/01/05).

For all fees associated with the review of fire and life safety systems please see OPS # 3100.01. This fee schedulecan be accessed through the following link:

http://www.chulavistaca.gov/City_Services/Public_Safety/Fire_Department/PDFs/prevention/fees_10_22_04.pdf

If a 3rd plan resubmittal and/or if a re-inspection is required, a fee shall be charged to cover expenses.

The following information must be included on / with all submitted sprinkler plans:

- The information required by NFPA 13 Chapter 8 section 8-1.1.1(1999 edition). Plans shall indicate all necessary engineering features, including all hydraulic reference nodes, pipe lengths and pipe diameters as required by the above named codes and standards. Provide separate drawings for the piping plan and reflective ceiling plans. Complete, accurate legends for all symbols and abbreviations shall be provided on plans.
- The associated building permit project-tracking number (example: B05-1234).
- Complete listings and manufacturers technical data sheets for all system materials shall be included with all underground and sprinkler system plan submittals. All system materials shall be U.L. listed for fire service and approved by the Fire Prevention Division prior to installation.
- The California Contractors License number shall be provided with each submittal. License number will be verified with the Contractors License Board.
- Calculations shall extend to the point at which the water supply data was determined.

- For commercial and industrial occupancies commonly referred to as "Spec. Buildings", with the potential for high-pile storage and/or wherein no specific end use is identified at the time of plan check, the sprinkler system shall have a minimum density of .45 GPM / 3,000 sqf design area. 286 degree F sprinkler heads shall be used in these buildings unless approved by the Fire Marshal. Roof coverage over mezzanine areas shall also be built to this standard. It is incumbent upon the sprinkler system designer to advise the building owner that the above density and design area are minimums for specific buildings; and that increases in sprinkler protection may be required based on future occupancy hazard classification, storage commodity classification, and storage configuration according to NFPA 13 and the California Fire Code.

- Water supply curves and system demand curves, including underground friction loss, hose allowance, and applicable in-rack sprinkler demand, may be plotted on computer generated graphs. Sprinkler system design, including hose demand, shall be limited to 90 percent of the available water supply in calculated systems. Water supply data may be obtained from the local water authority.

- A flow diagram shall be provided for all grid sprinkler systems to indicate flow quantities and directions for lines with sprinklers operating in the remote area. Show all directional arrows on the grid and include all hydraulic reference nodes on flow diagrams. Show the peaking of the demand area for computer generated models.

- Non-combustible construction shall be as defined by the California Building Code. Wood frame construction shall be considered combustible construction regardless of materials used for surface covering.

- If piping four (4) inches or larger is to be installed, structural load calculations will be required for the structural elements/systems supporting the load. Provide proof that this requirement has been taken into consideration.

- Hydraulic calculations shall be provided for all private fire hydrant systems (and some public systems where easements occur). Calculations shall be calculated back to the point of the flow test. The fire hydrant system shall meet the fire flow requirements as required by the California Fire Code.

- All thrust blocks on private fire hydrant lines and fire sprinkler laterals shall be calculated and constructed in accordance with NFPA 24. Calculations shall be submitted and the resulting dimensions of thrust blocks shall be shown on the plans with a minimum soil bearing of 1.500 lbs unless a geotechnical report is provided that substantiates a soils claim (See Chula Vista Fire Department details for both calculations and diagrams). Provide class 200 pipe for all fire service utilities. Special design considerations may also be required with excessive high static pressures or lines in which fire pumps are installed.

- The City of Chula Vista Fire Prevention Division will require the following inspections and tests as a minimum:

    - Thrust block pre-pour, trench and backfill inspection.
    - Underground hydrostatic test.
    - Underground flush.
    - Underground final
    - Overhead installation visual
    - Overhead hydrostatic test.
    - Overhead fire sprinkler final

- Contact the City of Chula Vista Fire Prevention Division at (1-691-691-5055) 72 hours in advance to schedule an inspection.

- In addition to an exterior bell, an interior audible device(s) shall be provided at a normally-occupied location(s) as approved by CVFD.

- An exterior strobe with STI 4X Nema Stopper Dome shall be provide on the buildings exterior wall located 12’ to 16’ above finished grade. The appliance shall be located as to create a perpendicular angle between the building and FDC/ PIV locations. For a detail of this requirement please use the following link:

  http://www.chulavistaca.gov/City_Services/Public_Safety/Fire_Department/PDFs/prevention/StrobeDetail.pdf

- The location of the fire department connection shall be within fifty feet of a fire hydrant.

- Fire sprinkler risers shall be contained within fire sprinkler riser rooms. For a detail of this requirement please use the following link:

  http://www.chulavistaca.gov/City_Services/Public_Safety/Fire_Department/PDFs/prevention/RiserRoom.pdf

- All control valves and water flow switches on all sprinkler systems shall be electrically monitored regardless of the number of sprinkler heads. Flow switches shall be shown in the hydraulic calculations.

- The end sprinkler on a line shall be restrained against excessive vertical and lateral movement by use of a wrap-around U-hook or by other approved means.

- All electrical rooms, meter rooms, upright sprinklers at the roof or in the attic space, or exterior sprinkler heads shall be of an intermediate temperature head.

- When static pressure exceeds 100 psi, arm overs and drops 12 inches and over require a hanger.

- 10 inch-listed bell shall be located near the building address, and be visible from the street. The 10-inch bell shall be listed weatherproof and installed to meet it's weatherproof listing. Additionally an interior horn/strobe shall sound an audible signal at a normally occupied location(s) as approved by the fire department. An approved sign shall be provided at or near the audible device stating the following: “SPRINKLER FIRE ALARM-WHEN ALARM SOUNDS CALL 9-1-1”.

- The discharge area for the main drain and inspector's test valve shall be protected with a concrete splash pad to prevent damage to landscaping during periodic testing. All main drains shall be routed to the exterior of the building.

- Inspector test valves shall be installed at the most remote portion of the building / floor.

- Light fixtures and other potential obstructions shall not interfere with the engineered spray patterns of sprinkler heads. The sprinkler contractor shall insure that the type and location of potential obstructions is considered in the design and installation of the system. The sprinkler contractor is responsible for coordinating and resolving conflicts in coverage patterns.

- The minimum fusible link temperature on the smoke and heat vents shall be not less than 360 degree F or a minimum of 100 degree F above the listed sprinkler head temperature. Sprinkler heads shall not be installed directly below automatic smoke and heat vents.

- Trapeze hangers shall be installed according to NFPA 13. The acceptable trapeze methods as outlined in NFPA 13 chapter 6 shall be schedule 10, schedule 40 or angles. All other methods will not be accepted unless a structural engineer or the architect of record provides to the fire prevention Division calculations and diagrams wet stamped and signed for each application.

- Clearly state the scope of ALL work included in this contract (done by sprinkler contractor.)

- Fire sprinkler contractors shall have received Chula Vista Fire Department licensing prior to any submittals.

- Buildings required to have an automatic fire protection system shall not pass final building inspection or be issued a certificate of occupancy until the fire protection system has passed final sprinkler inspection.

- The Fire Prevention Division shall require completed “Contractors Material & Test Certificate for Aboveground and Underground Piping”, as shown in NFPA 13 at the time of sprinkler final inspection.

- The sprinkler contractor shall provide an NFPA 25 booklet chained to each sprinkler riser.

- Aboveground sprinkler system piping and underground piping will not pass final inspection until the Fire Prevention Division receives all material certifications.

ADDITONAL INFORMATION:

- Jobs with 5 sprinklers and less do not require plan review.
- Fees are assessed upon a plan review of 6 or more sprinkler heads.